of the connectivity to that workstation. As such, IMPACS system **200** can seamlessly compress the images for delivery over a slower connection, process images for display on a lower resolution device etc. all of which are possible because of its intelligence as represented by its process brain/control engine **201**.

[0346] Lightweight Database that Can Easily be Tuned for Better Performance Using Replication, Caching and Other Techniques. Conventional approaches to DICOM interoperability take the speeds involved for image storage and delivery as a given. Many resort to peer-to-peer approaches for quicker image delivery recognizing that delivery of images from a PACS to a central system that sends it onward might be too slow. One known prior art approach addresses the problem of efficiency head-on with a completely new and disruptive networked file technology (that cannot be retrofitted onto existing PACS systems **100**) with a central tag database. The IMPACS framework **200** is built for current computing environments where networking speeds are much faster. Bottlenecks because of the IMPACS' **200** internal processing can be dealt with by replicating its relatively lightweight implementation across multiple cloud-based servers. By analyzing its audit trails for image access, the IMPACS system **200** can cache frequently used images and deliver them quickly to requesting agents without even accessing the corresponding slave PACS **110**. The IMPACS system **200** can even use advanced Web server methods to generate the speeds of peer-to-peer networking while still maintaining its centralized access and image delivery framework. While the IMPACS system **200** provides state of the art performance, it can be progressively improved for better performance based on the patterns of image access and use, and also be adapted to changes in technology. Conventional approaches do not provide for such usage-based improvements or provide a framework to capture such usage data, let alone enable tuning based on usage.

[0347] Accordingly, an IMPACS method and system **200** disclosed herein provides an improved, high performing, and extensible PACS server **110**. Despite all its functionality, the IMPACS system **200** can appear to a user U_n or modality M_n just like a regular PACS server **110**. No special configuration is needed for modalities M_n or user workstations WS_n (from a user's perspective) to connect to the IMPACS system **200** other than what a normal PACS server **110** might entail. The IMPACS system **200** can separate out the process of image access and handling from the images themselves in an efficient manner because of its lightweight central intelligence. The IMPACS system **200** can be deployed into a secure, cloud-based environment allowing it to be scaled without any modifications.

What I claim is:

1. A system for coordinating a process across at least two independent Picture Archiving and Communication System (PACS) to allow interoperability of the PACS, with each PACS handling the acquisition, retrieval, transmission, storage, and display of patients medical images using the Digital Imaging and Communications in Medicine (DICOM) standard, wherein each PACS includes at least one modality that acquires DICOM images, at least one workstation that retrieves and displays DICOM images, and at least one server that transmits, manages, and stores images and controls the at least one modality and the at least one workstation, wherein each image has an associated DICOM tag and an associated patient tag unique to each PACS, wherein the process from one PACS to another PACS includes at least one process step defined by at least one modality, workstation, server, DICOM tag, or patient tag, comprising:

a. a rules engine defining a set of transformation rules for each image, modality, workstation, server, DICOM tag, patient tags, and process step from each PACS;

b. a data unification and transformation engine identifying and resolving any conflict on the identities or values of the modalities, workstations, servers, DICOM tags, patient tags, and process step from all PACS using said rules engine by tracking and assigning a unique super-identity or super-value as applicable to each modality, workstation, server, DICOM tag, patient tag, and process step for all PACS;

c. at least one database storing a list of the DICOM tags of each image from each PACS, and storing the tracking and assignment of the super-identities or super-values by said data unification and transformation engine;

d. a security framework that controls access to each image from each PACS based on the assignment of the super-identities or super-values by said data unification and transformation engine and stored in said at least one database; and

e. a control engine performing the process steps to acquire, retrieve, transmit, store and/or display the images from any of said at least two PACS based on the DICOM tag and the assignment of the super-identities or super-values stored in said at least one database.

2. The system of claim **1**, further comprising a DICOM tag replication engine that replicates each DICOM tag of each image from each PACS, and a DICOM tag database for storing a copy of each DICOM tag of each image from each PACS.

3. The system of claim **1** wherein each PACS further includes at least one user who can access certain DICOM images, said data unification and transformation engine further identifying and resolving any conflict on the identities of the users from all PACS using said rules engine by tracking and assigning a unique super-identity to each user for all PACS, and storing the assignment of the super-identities by said data unification and transformation engine in a user/role/group database.

4. The system of claim **3** wherein said security framework controls access by each of said at least one user to each image from each PACS based on the assignment of the super-identities stored in said user/role/group database.

5. The system of claim **1** further comprising a tag map/override database for storing the tracking and assignment of the super-values of each DICOM tag by said data unification and transformation engine using said rules engine.

6. The system of claim **1** further comprising a modality map database for storing the tracking and assignment of the super-identities of each modality by said data unification and transformation engine using said rules engine.

7. The system of claim **1** further comprising a workstation map database for storing the tracking and assignment of the super-identities of each workstation by said data unification and transformation engine using said rules engine.

8. The system of claim **1** further comprising a patient tag database for storing the tracking and assignment of the